

CLASS EXERCISES

State the number of terms in each expansion and give the first and last terms.

1. $(x + y)^3$

2. $(x + y)^7$

3. $(x - y)^5$

Give the variable parts of the terms in each expansion.

4. $(x + y)^5$

5. $(x - y)^5$

6. $(2x - 3y)^4$

7. $(-x + 5y)^3$

8. $(x^2 + y)^3$

9. $(x^2 - y^2)^4$

Use the information in Exercises 4–9 to write each expansion.

10. $(x + y)^5$ (Exercise 4)

11. $(x - y)^5$ (Exercise 5)

12. $(2x - 3y)^4$ (Exercise 6)

13. $(-x + 5y)^3$ (Exercise 7)

14. $(x^2 + y)^3$ (Exercise 8)

15. $(x^2 - y^2)^4$ (Exercise 9)

PRACTICE EXERCISES

1. Write rows 1–11 of Pascal's triangle.

2. Which row would be used for the coefficients of $(a + b)^6$?

Expand each binomial.

3. $(x + y)^4$

4. $(x - y)^4$

5. $(x - y)^5$

6. $(x + y)^5$

7. $(x + 1)^6$

8. $(x - 1)^6$

9. $(x + 2)^5$

10. $(x - 2)^5$

11. $(2x + 3y)^4$

12. $(3x + 5y)^3$

13. $(2x + 2y)^6$

14. $(3x + 2y)^4$

15. $(2x + y)^5$

16. $(3x + y)^7$

17. $(x + 3y)^6$

18. $(x + 5y)^3$

Expand each binomial and simplify if possible.

19. $(x - y)^{10}$

20. $(-x + y)^{10}$

21. $(x^2 + 3)^4$

22. $(x^3 - 2)^5$

23. $(x^2 - y^3)^6$

24. $(2x^2 + 2y)^4$

25. $(x^{-1} + y^{-1})^5$

26. $(x^{-2} - y^{-3})^4$

27. $\left(\frac{1}{x} - \frac{1}{2}\right)^3$

28. $\left(1 - \frac{1}{z}\right)^3$

29. $(x^{\frac{1}{2}} + y^{\frac{1}{2}})^4$

30. $(x^{\frac{3}{2}} + y^{\frac{1}{2}})^5$

31. $(3 + i)^5$

32. $(1 - i)^{10}$

33. $(i - 2)^4$

34. $(1 + i)^8$

Find the sum of the expansions.

35. $(x + \sqrt{2})^4 + (x - \sqrt{2})^4$

36. $(\sqrt{x} + \sqrt{y})^6 + (\sqrt{x} - \sqrt{y})^6$

37. $(3 + 2i)^5 + (3 - 2i)^5$

38. $(a + bi)^6 + (a - bi)^6$